 ORIGINAL

Before The

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C.

In the Matter of	)	
	)	
Implementation of Section 17 of the Cable Television Consumer Protection and Competition Act of 1992	)	ET Docket 93-7
	)	
Compatibility Between Cable Systems and Consumer Electronics Equipment	)	

COMMENTS OF CABLEVISION INDUSTRIES CORPORATION

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March 22, 1993

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INTRODUCTION

Cablevision Industries Corporation ("CVI"), is the ninth largest cable operator with operations in 18 states and approximately 1.2 million subscribers. CVI installation and service personnel visit between 300,000 and 500,000 homes each year in the course of conducting business. This experience and that of other cable operators makes it uniquely qualified to speak to the issues in the instant Notice of Inquiry ("NOI"), ET Docket No. 93-7, FCC 93-30.

I. HISTORY OF CABLE CONVERTERS

Cable converters were first used more than 25 years ago. They were originally developed to assist cable subscribers with improved reception in areas

where signal ingress from nearby TV transmitters caused impaired reception on subscriber's TV receivers. As more channels became available via cable, they enabled the reception of channels that could not be tuned by TV receivers capable of only receiving channels 2 through 13 and the UHF band. They were also used to eliminate the deleterious effects of land mobile, amateur radio and other services in the 120 -- 174 Mhz bands. Customers thought positively about them, as converters were simple to use and enabled viewing channels that could not otherwise be watched due to tuning limitations and signal ingress with TV receivers.

[redacted]

Since that time the consumer electronics industry began incorporating more features in their products and today most TV receivers are available with remote tuning capability and they can be configured to tune some or all cable channels. Unfortunately the original reasons for using converters have not been addressed by many manufacturers of consumer electronics equipment. Signal ingress in new TV receivers and VCRs is commonplace and is still frustrating cable operators as well as owners of the faulty equipment.

Many modern receivers are delivered to customers configured to receive TV channels 2 through 13 and the UHF band. Most products are capable of being configured to receive cable channels but often complicated instructions must be used to enable cable tuning features. Others are capable of tuning "any fourteen of 128 channels." Consumers must decide in advance which 14 channels are to be available for viewing. If other channels are to be received, the unit must be reconfigured. TV dealers rarely make service calls to assist purchasers of TV sets and VCRs in configuring their equipment. It is not uncommon to arrive at a customer's home to find the new TV receiver or VCR still in the box. Cable operators usually do not charge customers to assist in installing a new TV receiver or VCR. Dealers routinely charge $50 to $100 for service calls to assist in installing newly purchased equipment.

II. MODIFICATION OF EXISTING EQUIPMENT

Most of the problems concerning consumer equipment compatibility with cable service can be reduced by providing subscribers with two converter/descramblers. One would be connected to the VCR and the other to the TV receiver. However if cable operators provide the second unit at reduced or no cost, a potential theft of service problem exists if subscribers relocate the second unit from the VCR and provide it to a friend or relative to receive programming without paying for it. This problem can be alleviated if both units are packaged in a single enclosure.

Already under development and expected to be available in 1993 are dual decoders units using two separate tuners and integral programming timers. When used with universal remote controls, they permit full control over TV receiver and VCR features and permit viewing and recording any combination of scrambled services. They enable owners of VCRs to independently record scrambled programming while viewing other scrambled programming using the second converter/decoder. They also permit subscribers to tape two consecutive programs that appear on different channels. They contain integral VCR timers to permit subscribers to pre-program the units to turn on and tune channels using preset programming.

CVI already provides subscribers with modern converters that already include integral preset timers to permit pre-programming start times and channel

selections to simplify VCR recording. For units without integral timers, remote control units with built-in timer functions are available.

The use of converters before VCRs is often desirable and sometimes even mandatory. Many VCRs have been built with a limited capacity for tuning cable channels. They can be programmed to tune only a preset number of channels using thumbwheels, such as any "fourteen of 128 channels," etc. and cannot tune all cable channels without reprogramming the thumbwheel. Most VCR's use tuners that have little or no shielding to protect them from signal ingress. As a result, converters must be used to prevent such ingress from interfering with recording and viewing programming. In other cases, inadequate isolation permits local oscillator leakage from the input ports causes interference to other subscribers when signals are coupled back into the cable systems.

III. NEW CABLE SECURITY

A. Interdiction

Under development for nearly twenty years, interdiction has been promoted as the answer to consumer friendly security. Interdiction is an access control system that injects interfering carriers on channels to be denied to non-subscribers. Interfering or jamming carriers are generated at each tap location. Signals on the cable system are distributed in unscrambled format. Because signals are distributed in the clear, interdiction is generally seen as an all or nothing approach. Each home connected to cable must have an active interdiction unit

before pre-existing security can be deactivated. Studies have shown the costs for interdiction are about $100 per home passed. In a typical system with 50% homes passed subscribing to cable and 50% of those homes taking one or more pay services, the cost for interdiction would be about $400 per pay-TV household.

There are inherent disadvantages to interdiction. The jamming process is not always complete so there are some TV receivers that display a recognizable picture and/or sound intermittently. CVI estimates that about 50% of its subscribers will still require converters to receive all signals satisfactorily. Some subscribers do not have cable ready TV receivers and VCRs -- some have cable ready TV receivers but their VCRs are not cable ready. In other instances, signal ingress is so severe that converters are needed to provide satisfactory reception.

In other situations, local oscillator leakage from the input port introduces interference to other cable subscribers when the signal is backfed onto the cable system. This type of interference is especially troublesome for cable operators because it is only observed when the offending channel is tuned about 45 MHz (TV IF frequency) from the viewed channel. Usually by the time service personnel are notified and arrive on the scene either party has changed channels and the condition is no longer observable.

Tampering attempts by persons trying to steal cable service can cause degradation to paying subscribers on the cable system. Since signals are in the clear on the cable system, signal pirates will be tempted to "tap into" the cable system.

Such attempts can damage the integrity of the cable system and degrade signals downstream.

B. Broadband Descrambling

A system using a technique of broadband descrambling has been proposed. As far as is known, the system still exists at the conceptual stage and no hardware has been developed. Early estimates place the cost of the subscriber units at $200 for five to ten secured channels with 50% price increases for each additional five to ten channels. For a system scrambling 40 channels, subscriber units would cost about $400 each. Complex and expensive headend processing equipment would also be required. Early estimates place the cost at about $20,000 per group of 10 channels. These costs would place an economic hardship on small systems and effectively increase the cost of security.

C. Compression Systems

Compression systems promise to open up new programming to customers. With compression ratios of up to 10 compression channels for each 6 MHz VSB NTSC channel, signal compression promises to revolutionize TV viewing. CVI and other MSOs have committed to purchase compression units beginning in 1994. CVI expects an many as 10% to 15% of its subscribers will have compression technology in their homes after the early deployment. In addition new delivery systems using DBS satellites and ADSL delivery systems using telephone company twisted pair are expected to arrive in the market place in late 1993 and early 1994.

These systems all have one thing in common -- they require the placement of decoding equipment near TV receivers and VCR's. As presently conceived, they process incoming signals and deliver them to consumer electronics equipment in a single channel NTSC format.

D. ANSI/EIA-563 -- MultiPort

While not new, EIA-563 or MultiPort has been a standard for about four years, it promises to solve most cable/consumer electronics interface problems. When first introduced in 1989, over 1 million TV receivers were manufactured and introduced into the market. Receivers from RCA, General Electric, Panasonic, Quasar, Curtis-Mathes and JC Penny were mated with cable descrambling devices produced by Jerrold and Zenith. Oak, Pioneer and Scientific-Atlanta also developed prototype MultiPort decoders. Cooperative efforts between cable operators, consumer electronics manufacturers and retailers created success stories about satisfied cable subscribers being able to use all features of their consumer electronics equipment.

Jointly developed by the Electronic Industries Association ("EIA") and the National Cable Television Association ("NCTA") the MultiPort standard is a technical specification which enables decoder manufacturers to produce small descramblers which plug into sockets on the backs of TV receiver and VCRs made to the specification. A cable subscriber who purchases a cable-compatible TV or VCR equipped with the MultiPort interface would be able to connect the TV or

VCR directly to the cable input, provided the cable operator has supplied him with a descrambler also built according to the standard. Customers could install MultiPort decoders themselves using a single plug and no tools. All features of the TV or VCR, including the remote control, would remain fully functional.

In the fully developed implementation, new technologies such as compression, DBS satellite, decoders with integral TV guides and On Screen Displays which show current programming choices and channel names and numbers would be compatible. Ordering of Impulse Pay Per View events would be possible using a proposed data link and force tune capability.

MultiPort decoders would be completely compatible with existing addressable security systems. Unlike interdiction and other proposed systems, no wholesale change out of technology would be necessary. Introduction of the technology would be incremental. As subscribers purchase MultiPort equipped products, cable operators would purchase and provide low cost MultiPort decoding units. MultiPort decoders are expected to cost about $30 to $50 or about one-third to one-half of existing set-top converter/descrambler units.

E. Other Issues

Problems with inadequate tuning capability, signal ingress and local oscillator leakage from the input connector will still plague consumers if the consumer electronics industry does not take corrective action. Ten years of regular meetings between the cable and consumer electronics industries have not solved

these long standing problems. CVI believes the Commission must intervene in this area if it is ever to be solved. CVI recommends the Commission adopt rules which require products labeled as "cable compatible" or "cable ready" meet certain minimum standards. If they do not, then they should not be capable of tuning cable channels. If such rules are not enacted, consumer electronics retailers will continue to market products as "cable ready" that cannot be used without converters.

Signals in excess of 500 mV/m are routinely measured in areas near TV broadcasting stations. Signals of this intensity are measured both in urban and rural areas whenever TV broadcast towers are located in or near communities. CVI recommends standards for TV receiver and VCR ingress susceptibility be set so consumers can use the equipment in field of up to 1 V/m. VCRs in particular have been susceptible to signal ingress.

The Commission also invited comments on other products that affect consumer's use of consumer electronic products connected to cable systems. Many

as either co-channel or multipath, depending on the nature of the signal on the cable system. In addition, signal ingress into FM stereo systems from nearby TV stations are backfed onto the cable systems and disrupt reception of TV channels on the cable system for that subscriber and others downstream from that subscriber. Consumers are often required to invest in special isolation amplifiers to reduce or eliminate signals backfed into cable systems from FM tuners.

Excessive local oscillator signals from TV receivers and VCRs are often backfed on cable systems causing interference for subscribers downstream. Cooperative efforts between the cable and consumer electronics industries have indicated that if consumer electronics manufacturers limited local oscillator leakage to -26 dBmV, cable operators could maintain sufficient isolation within components in the cable system to prevent local oscillator leakage from causing harmful interference to other subscribers. When additional isolation in cable system drops and passive components of 20 dB is maintained, interference would be at least 46 dB below a 1 mV signal.

Cable operators are required to maintain distortion levels of at least 51 dB below carrier levels. Consumer electronics manufacturers must be cognizant of this when designing tuners for cable ready TV receivers and VCRs. Distortion generated in consumer electronics tuners and IF amplifiers combines with distortion on cable signals. The combined distortion levels must not exceed the threshold of visibility if they are not to cause harmful interference for owners of the equipment.

CVI recommends consumer electronics products be designed so distortion products are at least 60-65 dB below carrier levels. When combined with cable system distortion products, distortion on the combination would be at least 48 dB below carrier levels.

With over 30 million TV sets and VCRs sold annually, it has been estimated the average TV household purchases a TV or VCR every three to five years. With these rates of purchase, it is estimated the market could be saturated with MultiPort products within seven years of initial roll-out. Cable operators would suffer the loss of remote rental revenue and would have to retire existing set-top decoder technology. They would benefit from reduced capital investment in lower cost MultiPort decoders and lower maintenance costs for simple "decoder only" technology with no moving parts to wear out.

IV. RECOMMENDATIONS

CVI has invested over $40 million in addressable technology in recent years. CVI's subscribers have almost universally been pleased with the additional programming choices made possible with addressability. In fact, numerous communities have made addressability a condition of their franchise. Addressability has made a multitude of subscription programs available. In recent years, automated Pay Per View ordering systems allow subscribers to receive current motion pictures. Addressability made it possible for subscribers to receive complete coverage of the 1992 Olympic Games.

CVI believes the Commission should recognize the bigger issues of establishing methods today for interfacing all technologies, including new and emerging technologies, with consumer electronics products. New service offerings from the cable industry using compression technology, the telephone industry offering Video On Demand and Near Video On Demand using ADSL technology and from MultiPort Distribution and DBS will all create interfacing problems with modern TV sets and VCRs. By adopting the ANSI/EIA-563 MultiPort standard, the Commission can establish a standard interface for all technologies. Cable operators can be among the first to deliver user friendly decoder only MultiPort units to their subscribers. Because MultiPort decoders will be compatible with existing security systems, CVI's $40 million investment in addressable technology will not be made prematurely obsolete.

CVI believes MultiPort products can migrate into the market at a satisfactory rate without the insurmountable capital costs imposed by other technologies such as interdiction. With over 30 million TV and VCR sales annually, most cable subscribers will purchase a new product every three to five years. CVI also recognizes immediate solutions to consumer electronics interface problems are required. Therefore it proposes to make near term solutions available to its subscribers. As previously discussed, dual converter/descrambler units are under development and are expected to be available by the end of 1993. When combined with universal remote controls that can be provided by CVI or purchased at retail

outlets, subscribers will have access to features as delineated in the 1992 Cable Act; including:

> (i) to watch a program on one channel while simultaneously using a video cassette recorder to tape a[n] program on another channel; (ii) to use a video cassette recorder to tape two consecutive programs that appear on different channels; and (iii) to use advanced television picture generation and display features.

CVI believes this combination of solutions offers maximum convenience

for our subscribers while recognizing the company's need to maintain signal security.

Respectfully submitted,

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